

9-7

Scatter Plots

Warm Up

Problem of the Day

Lesson Presentation

9-7 Scatter Plots

Warm Up

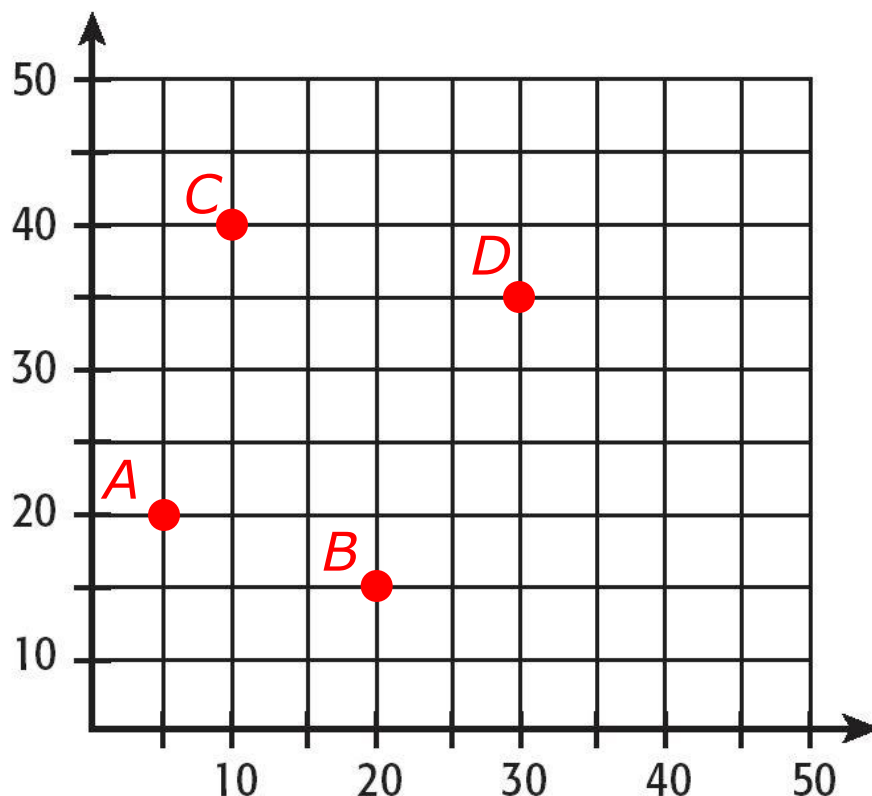
Graph each point on the same coordinate plane.

1. $A (5, 20)$

2. $B (20, 15)$

3. $C (10, 40)$

4. $D (30, 35)$



9-7 Scatter Plots

Learn to create and interpret scatter plots.

9-7 Scatter Plots

Vocabulary

scatter plot

correlation

line of best fit

9-7 Scatter Plots

A **scatter plot** is a graph with points plotted to show a relationship between two sets of data.

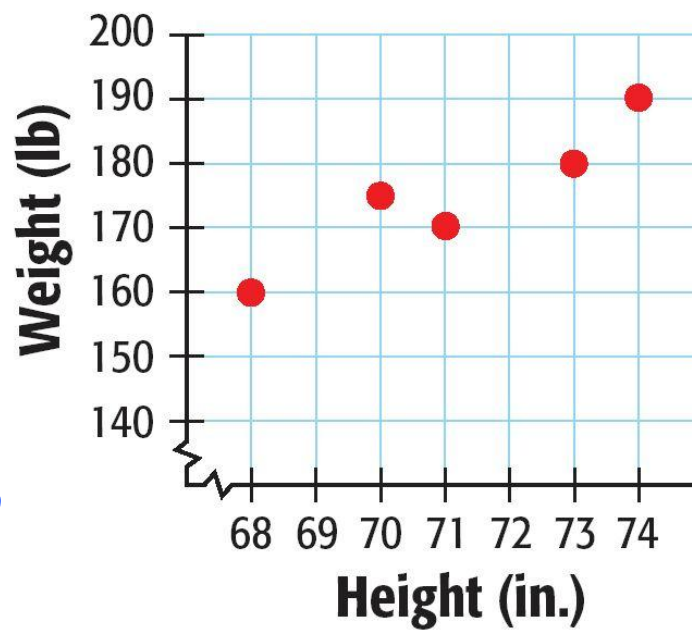
9-7 Scatter Plots

Additional Example 1: Making a Scatter Plot of a Data Set

Use the given data to make a scatter plot of the weight and height of each member of a basketball team.

Height (in.)	Weight (lb)
71	170
68	160
70	175
73	180
74	190

The points on the scatter plot are (71, 170), (68, 160), (70, 175), (73, 180), and (74, 190).



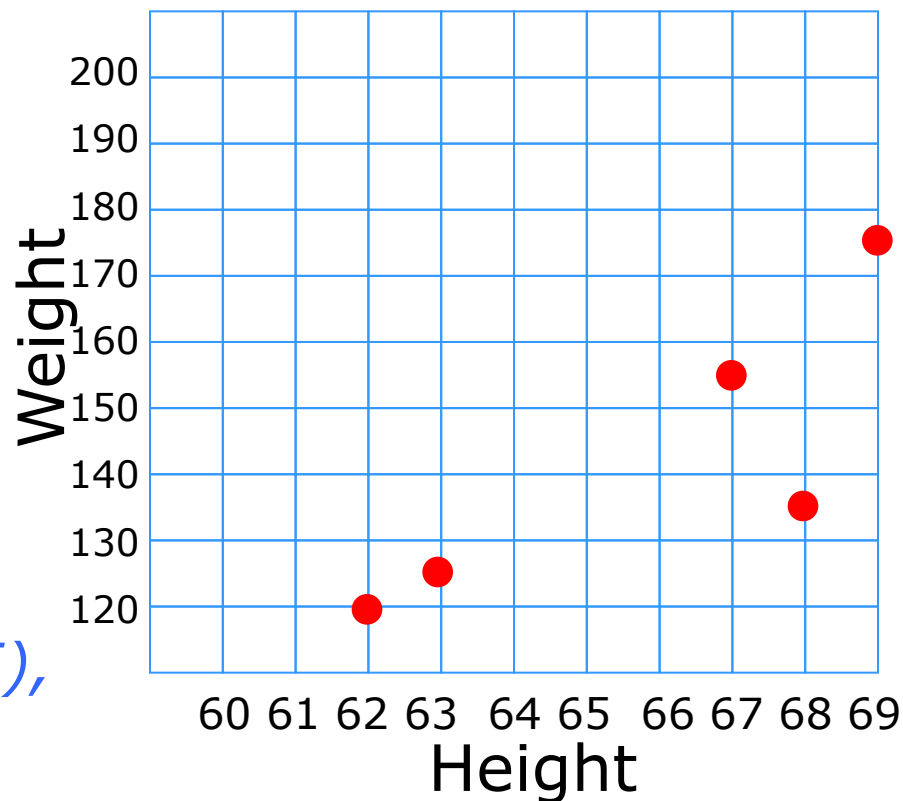
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Check It Out: Example 1

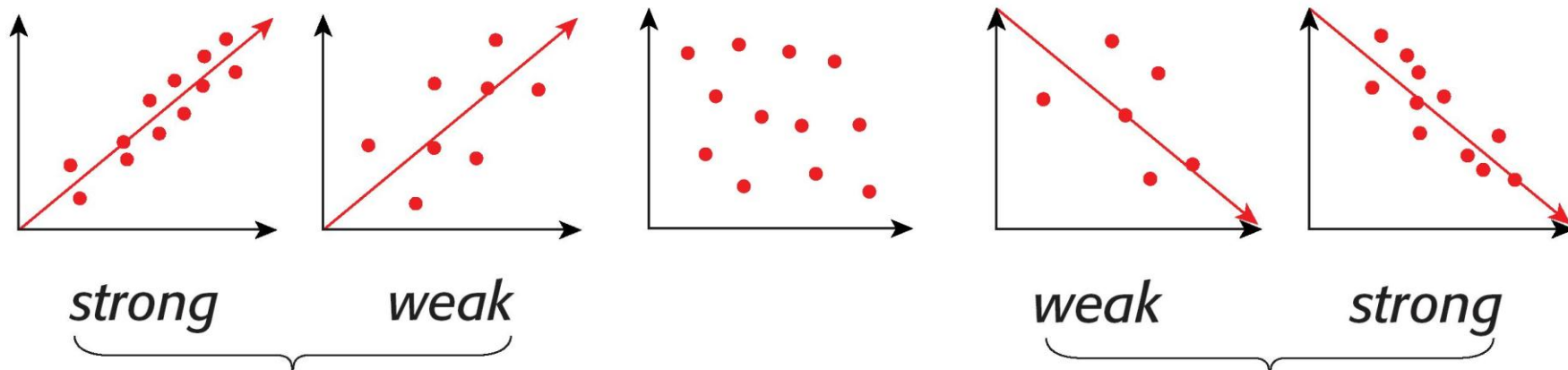
Use the given data to make a scatter plot of the weight and height of each member of a soccer team.

Height (in)	Weight (lbs)
63	125
67	156
69	175
68	135
62	120

The points on the scatter plot are (63, 125), (67, 156), (69, 175), (68, 135), and (62, 120).

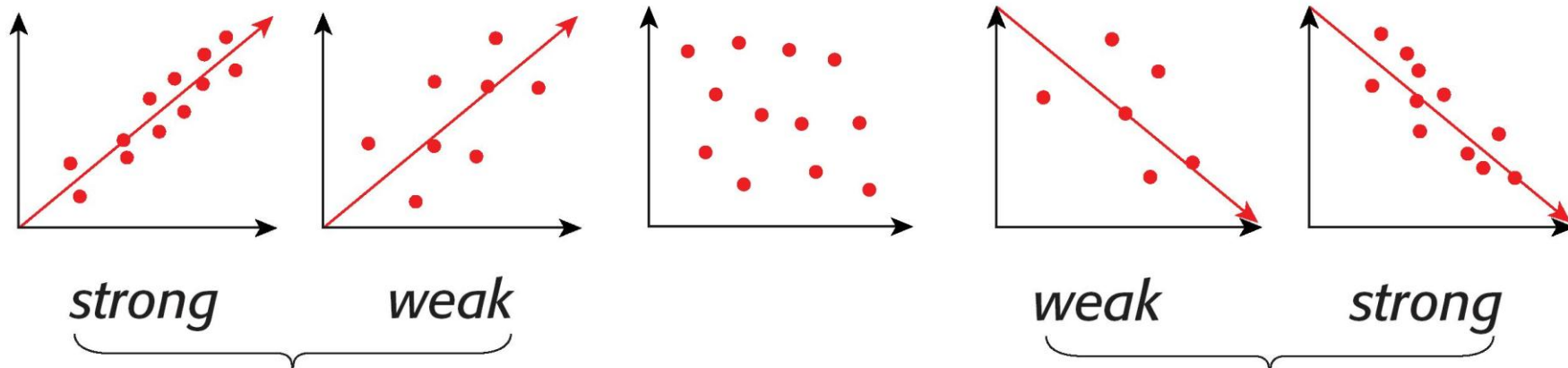


9-7 Scatter Plots



Correlation describes the type of relationship between two data sets. The **line of best fit** is the line that comes closest to all the points on a scatter plot. One way to estimate the line of best fit is to lay a ruler's edge over the graph and adjust it until it looks closest to all the points.

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Positive correlation; both data sets increase together.

No correlation; changes in one data set do not affect the other data set.

Negative correlation; as one data set increases, the other decreases.

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Additional Example 2A: Identifying the Correlation of Data

Do the data sets have a positive, a negative, or no correlation?

The size of a jar of baby food and the number of jars of baby food a baby will eat.

Negative correlation: The more food in each jar, the fewer number of jars of baby food a baby will eat.

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Additional Example 2B: Identifying the Correlation of Data

Do the data sets have a positive, a negative, or no correlation?

The speed of a runner and the number of races she wins.

Positive correlation: The faster the runner, the more races she will win.

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Additional Example 2C: Identifying the Correlation of Data

Do the data sets have a positive, a negative, or no correlation?

The size of a person and the number of fingers he has

No correlation: A person generally has ten fingers regardless of their size.

9-7 Scatter Plots

Helpful Hint

A strong correlation does not mean there is a cause-and-effect relationship. For example, your age and the price of a regular movie ticket are both increasing, so they are positively correlated.

9-7 Scatter Plots

Check It Out: Example 2A

Do the data sets have a positive, a negative, or no correlation?

The size of a car or truck and the number of miles per gallon of gasoline it can travel.

Negative correlation: The larger the car or truck, the fewer miles per gallon of gasoline it can travel.

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Check It Out: Example 2B

Do the data sets have a positive, a negative, or no correlation?

Your grade point average and the number of A's you receive.

Positive correlation: The more A's you receive, the higher your grade point average.

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Check It Out: Example 2C

Do the data sets have a positive, a negative, or no correlation?

The number of telephones using the same phone number and the number of calls you receive.

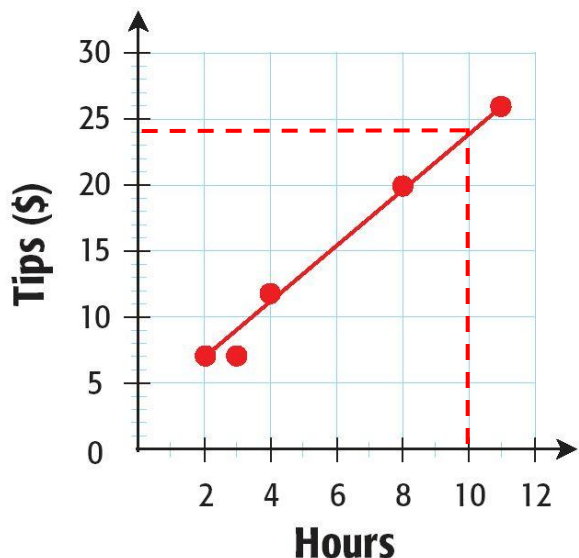
No correlation: No matter how many telephones you have using the same telephone number, the number of telephone calls received will be the same.

9-7 Scatter Plots

Additional Example 3: Using a Scatter plot to Make Predictions

Use the data to predict how much a worker will earn in tips in 10 hours.

Hours	4	8	3	2	11
Tips (\$)	12	20	7	7	26

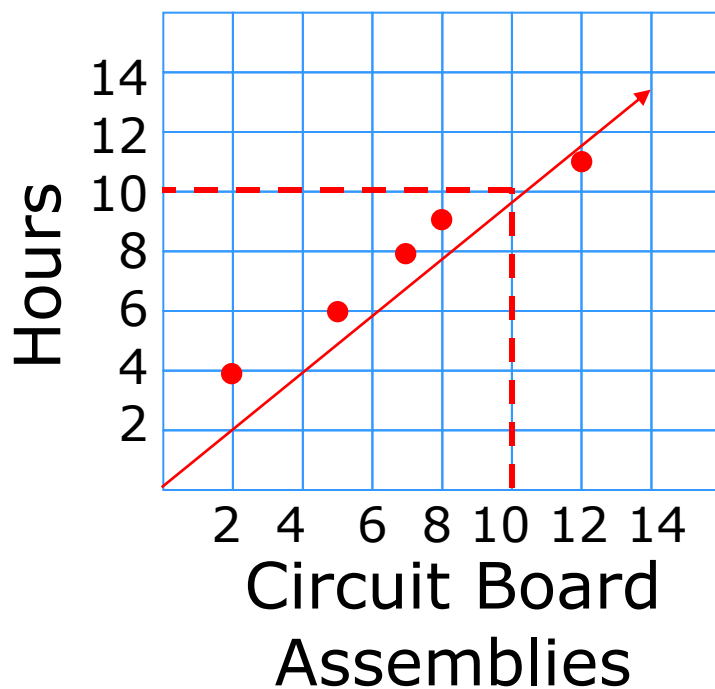


According to the graph, a worker will earn approximately \$24 in tips in 10 hours.

9-7 Scatter Plots

Check It Out: Example 3

Use the data to predict how many circuit boards a worker will assemble in 10 hours.



Hours Worked	4	8	6	9	11
Circuit Board Assemblies	2	7	5	8	12

According to the graph, a worker will assemble approximately 10 circuit boards in 10 hours.